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AUTHOR Viteli, Jarmo
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ABSTRACT

The purpose of this study was to determine the learning styles of English-as-a-Second-Language (ESL) students and individual differences in learning English idioms via computer assisted language learning (CALL). Thirty-six Hispanic students, 26 Japanese students, and 6 students with various language backgrounds from the Nova University Intensive Language Program were given learning style questionnaires before the 4-week experiment in order to determine their learning preferences. There were five learning factors among the students: (1) kinesthetic/tactile; (2) visual; (3) auditory; (4) individual; and (5) group. Students preferred kinesthetic/tactile and individual learning styles: the differences between the kinesthetic/tactile learning preference and visual and auditory learning preferences were significant. The difference between individual learning preference versus group learning preference was significant. All groups were given tests before the experiment, after the second and third hours of study, and a final test after the experiment. The differences between kinesthetic/tactile students' test results versus visual and auditory students' test results were significant at pretest and after the second hour of study. However, there were no significant differences in the final test results between these students. It was concluded that CALL is suitable as a supplementary tool and as an alternative to conventional methods of teaching English idioms to foreign adult students who are from different cultures, who have different learning preferences, and whose native language varies. (44 references) (GL)

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LEARNING STYLES AND INDIVIDUAL DIFFERENCES IN LEARNING ENGLISH IDIOMS VIA COMPUTER ASSISTED LANGUAGE LEARNING IN ENGLISH AS A SECOND LANGUAGE

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JARMO VITELI

UNIVERSITY OF TAMPERE

FINLAND

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ABSTRACT

The purpose of this study was to determine the learning styles of English as a Second Language (ESL) students and individual differences in learning English idioms via Computer Assisted Language Learning (CALL). Such ESL students from the Nova University Intensive Language Program participated in this study. There were 36 Hispanic students, 26 Japanese students, and six students with various language backgrounds.

The duration of the experiment was four weeks. Each week the students worked with computers studying English idioms. They studied 12 idioms during each session. Before the experiment students were given learning style questionnaires in order to determine their learning preferences. There were five learning factors among these students: (1) Kinesthetic/Tactile, (2) Visual, (3) Auditory, (4) Individual, and (5) Group. Students preferred Kinesthetic/Tactile and Individual learning styles: the differences between Kinesthetic/Tactile learning preference and Visual and Auditory learning preferences were significant; $F(1,67)=4.0805$, $p < .05$, $F(1,67)=12.7013$, $p < .001$, respectively. The difference between Individual learning preference versus Group learning preference was significant, $F(1,67)=4.6192$, $p < .05$.

All groups (study levels I-IV) were given tests before the experiment, after the second and third hours of study, and a final test after the experiment. The differences between Kinesthetic/Tactile students' test results versus Visual and Auditory students' test results were significant (.05 level) at Pretest and Interim I. However, there were no significant differences in the final test results between these students. It was concluded that CALL is suitable as a supplementary tool and an alternative to conventional methods of teaching English idioms to foreign adult students who are from different cultures, who have different learning preferences, and whose native language varies.

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INTRODUCTION

One essential part of every language are idioms. What is an idiom? According to Dixson (1985, screen 1) "an idiom is a phrase that has a special meaning that cannot be understood from the normal meanings of the words in it".

English is very rich in idiomatic expressions. In fact, it is difficult to speak or write English without using idioms. An English native speaker is not aware that he is using an idiom; perhaps he does not even realise that an idiom which he uses is grammatically or semantically incorrect or for the foreigner hard to understand. A non-native learner has to make the correct use of idiomatic English one of his main aims, and the fact that some idioms are illogical or grammatically incorrect causes him difficulty. Only careful study and exact learning will help. (Seidl, 1978, 4).

Studying idioms is also an important part of the Nova University Intensive Language Program. At this moment, students in levels I - IV are studying idioms once a week with their instructors. The CALL provides another opportunity to study idioms. However, there are some questions without answer. First, and probably most inportant one is: "Should we teach English idioms to all foreign students via CALL or are there students who are unable to learn idioms in this manner?" The present study is part of the versatile and flexible learning environment at the Nova University Intensive Language Program. The objective of this project is to create a learning environment that will meet the individual needs of each student to learn English as a second

language. Learning is an individual process requiring, sometimes, individualized instruction.

The reasons why idioms were selected to be the topic of this research are as follows:

1. Students complained that they do not get enough practice with idioms during the scheduled class time. Usually, one student is able to answer once or twice during a one-hour class in which 12 idioms usually are taught. (Discussion session with the students 2.8.1988).
2. Instructors reported that they could not allot more time to the teaching of idioms and that they felt that there should be better ways to teach idioms than conventional classroom instruction. (Teacher meeting 2.10.1988).
3. To learn the idiom is almost the same as memorizing it. As Dr. Travis, director of Nova Uniiversity Intensive Language Program, stated (2.12.1988), "it is mostly a mechanical problem". To do repetitive, meaningful exercises in the classroom is almost impossible but an adequate software might be able to do it.

According to Viteli (1989), students the Nova University Intensive Language Program learned idioms throoh CALL as well as in teacher-taught groups. In that study students from Nova University Intensive Language Program studied idioms in two groups: half with a teacher and the other half with computers. There were no significant differences in learning results between

these two groups in any of the study levels (I-IV) (Appendix A). Present research was a natural follow up to that research. This study concentrated on the individual learner. First, one investigated each student's learning styles. Then, all the students studied idioms via CALL. During and after the experiment the student took tests. In that way one was able to answer the question:"Should CALL be used for everyone to teach idioms or are there students who are unable to benefit from CALL"?

RESEARCH QUESTIONS

The questions that will be of interest in this study are:

1. What are students' learning styles in the Intensive Language Program at Nova University?

2. What are the relationships between learning styles and learning English idioms via CALL?

BACKGROUND AND SIGNIFICANCE OF THE STUDY

Computer Assisted Instruction (CAI) and Computer Assisted Language Learning (CALL) for Effective Instruction

During the last decade there has been discussion about the benefits of using CAI and CALL in teaching and learning (Kulik, Bangert & Williams, 1983; Roblyer, 1985; Lozano, Dublinski, Hatwes, Kite and Ludwig, 1985; Niemiec and Wahlberg, 1987).

All these meta-analysis noted that CAI and CALL can be highly effective in a variety of areas. However, there are studies that do not provide any evidence that CAI or CALL are more effective than traditional modes of instruction (Adams & Rosenbaum, 1969; Barrutia, 1970; Williams, 1980). While evaluating the studies in which people have used CAI or CALL, it is important to consider that CAI and CALL are dependent on the software available for instruction (Pederson, 1985). Pederson (1985:113) has stated: "CALL, in and of itself, does not result in more and better learning; it is the specific way instruction is coded in CALL software that has the potential of affecting learning positively, for specific learners in specific contexts".

Despite much evidence that CAI and CALL produce better results, there are still many basic questions that remain unanswered: What makes CALL superior to a conventional method of instruction? Is it really CALL that produces these achievement differences? Is it possible to generalize these results? Are there differences between students learning English via CALL? To answer these questions Gagne (1980) has asserted that it is time

for a new approach to the study of media. It is time for a theory that should abandon the atheoretical bent of the past and try to find much-needed, convincing, and workable models for designing media research.

Theoretical Models of Second Language Acquisition and CALL

It is agreed among researchers that SLA is too complex a phenomenon to be explained at this stage by a single theory; several models that account for various components of the overall process are thought to be needed to guide future research (Tollefson, Jacobs & Selipsky, 1983). Stern and Cummins (1981) have provided a framework for the examination of models of second-language learning, as summarized in Figure 1.

Factors	Attributes
Social Context	dominance patterns integration strategies group attitudes
Learner Characteristics	affective characteristics personality cognitive attributes, age
Learning Conditions	objectives context treatment evaluation
SLA Learning Process	strategies processes
Outcomes	interlanguage

Figure 1. Factors That Influence the Learning Process and Their Attributes (Stern and Cummins, 1981).

This componential framework emphasizes that the learning process is central to understanding SLA. The learning process must eventually be seen as interaction between the central process and the variables that affect it -- an interaction which then results in learning outcomes.

Salomon (1974; 1979) has proposed a workable model for designing media research. Salomon's model takes into account three important variables in mediated instruction: the learner, the learning task, and the coding elements. There are five basic tenets of Salomon's theory that are of particular importance to the design of CALL basic research:

1. The ways a medium stores and delivers instruction (coding elements), rather than the medium itself, stand the best chance of affecting cognition.

2. Coding elements often mirror or start a cognitive subskill in human learners (focusing, organizing, highlighting). These subskills are often those most affected in students as a result of the use of the coding elements.

3. Different learners are affected in different ways by any given coding element.

4. Different learners are affected in different ways by their perception of the task expectations related to their use of instruction that is transmitted via a given coding element.

5. A medium's coding elements will often interact with related learner differences and related learning tasks.

It is interesting to note that Salomon relies heavily on Cronbach's Aptitude-Treatment Interaction (ATI) model (Cronbach and Snow, 1977), which predicts that most students' individual differences will interact with the way they are taught and result in differential learning outcomes. In media research (Pederson, 1985), the coding element rather than the medium itself stands to make the greater difference in instruction.

Learning Styles and Teaching Styles. Should They Be Compatible?

In order to determine the various learning styles, researchers have used primarily self-reporting questionnaires on which students select their preferred learning styles (see Babich, Burdine, Allbright, and Randol, 1975; Dunn, Dunn, and Price, 1975, 1979; Kolb, 1976; Reinert, 1970).

The findings made by Dunn (1983; 1984) and Reinert (1976) showed that U.S. school children have four basic perceptual learning channels (or modalities):

1. Visual learning: reading, studying charts
2. Auditory learning: listening to lectures, audiotapes
3. Kinesthetic learning: experimental learning, that is, total physical involvement with a learning happening
4. Tactile learning: "hands-on" learning, such as building models or making laboratory experiments

Most students identify their learning strengths correctly, particularly when an element is strongly preferred or rejected

(Dunn, 1984). Dunn and Dunn (1979) found that 20-30% of school-age children appear to be auditory learners, that 40% are visual, and that the remaining 30-40% are tactile/kinesthetic, visual/tactile, or some other combination.

Postsecondary-level students preferred learning styles that parallel their learning strengths (Farr, 1971). Domino (1979) found that college students who had been taught in their preferred learning style scored higher on tests, fact knowledge, attitude, and efficiency than those taught in instructional styles different from their preferred styles.

Reid (1983;1987) has made a pioneer study to investigate the learning style preferences of second- language learners of English. Generally speaking ESL students strongly preferred kinesthetic and tactile learning styles. Most language groups showed a negative preference for group learning.

Research with secondary students (Hodges, 1982) has shown that about 90% of traditional classroom instruction is geared to the auditory learner. Teachers talk to their students, ask questions, and discuss facts. However, only 20% to 30% of any large group could remember 75% of what was presented through discussion. To solve this problem, some learning style theorists suggest matching teachers' and students' styles. In this way students are exposed to teaching styles that are consistent with their learning styles (Barbe, Swassing, & Milone, 1979; Dunn, 1984; Dunn & Dunn, 1979; Dunn, Dunn, & Price, 1978; Gregorc,

1979b; Hunt, 1979). Gonzales (1977) urges teachers in bilingual classrooms to identify individual variables and determine various approaches to achieve interaction. However, others (Cronbach & Snow, 1977), while agreeing that the development of effective teaching behaviors is essential to student achievement (Brophy 1986), believe that basing instructional adaptation on student preferences does not improve learning and may be harmful. From the educator's viewpoint, schools exist to serve both society and the individual; striking that balance must necessarily limit individualized education (Davidman, 1981).

Moreover, even if researchers and educators successfully develop learning style assessment procedures, specify learning outcomes, and relate educational experience to them, the impact on classroom teaching may be limited unless teachers can be persuaded to use that knowledge (Grasha 1984). One solution to this problem might be CALL if it seems to suit for certain types of learners and if there is enough quality and interesting software available.

Overall, there seems to be an ongoing controversy over whether it is good to match teaching styles and learning styles.

DESIGN OF THE PRESENT STUDY

All students at the Nova University Intensive Language Program (n=68) from level one to level four participated in this study. There were two classes and 19 students at level one, two classes and 19 students at level two, two classes and 20 students at level three and one class and 10 students at level four.

The students studied idioms once a week. During this experiment the students studied idioms using CALL. The students used the "Essential Idioms in English" software designed by Dixson (1985). Level I students studied lessons 4,5, and 6; level II students lessons 14, 15, and 16; level III students lessons 24, 25, and 26; and level IV students lessons 35, 36, and 37. These lessons included the same idioms as their idiom book (Dixson, Essential Idioms in English, 1983). However, students did not use the book in their lessons. At each level, students studied different idioms but the instruction was the same: all the students studied idioms via the same media, the computer. The software had the same structure in each lesson. Figure 2 shows the design of the present study.

ALL STUDENTS FROM LEVEL I TO LEVEL IV	
LEARNING STYLE QUESTIONNAIRE	WEEK 21
PRE-TEST ABOUT COMING IDIOMS	WEEK 22
E X P E R I M E N T D U R A T I O N (three weeks 50 minutes every week)	WEEKS 23 to 26
TWO INTERIM TESTS	WEEKS 24 and 25
POSTTEST	WEEK 26

Figure 2. Design of the Present Study

RESULTS AND DISCUSSION

There are five factors that describe students' perceptual learning preferences.

Those factors are:

1. Kinesthetic/Tactile learning preference
2. Visual learning preference
3. Auditory learning preference
4. Individual learning preference
5. Group learning preference

Generally speaking students preferred Kinesthetic/ Tactile learning styles. Table 1 shows means and standard deviations of each learning style.

Table 1. Learning Style Preference Means, Standard Deviations, Minimums, Maximums, and Number of Students.

Learning Style Preference	Mean	SD	Min	Max	n
Kinesthetic/Tactile	19.49	2.97	10	25	68
Visual	18.42	3.38	10	25	68
Auditory	17.97	2.44	12	24	68
Individual	17.47	3.19	11	25	68
Group	16.04	3.56	6	25	68

Note: Minimum can be 5 (5*1) and Maximum 25 (5*5).

The differences between Kinesthetic/Tactile learning preference and Visual and Auditory learning preferences were significant, $F(1,67)=4.0805$, $p < .05$, $F(1,67)=12.7013$, $p < .001$, respectively. Also the difference between Individual learning preference versus Group learning preference was significant $F(1,67)=4.6192$, $p < .05$.

These results support earlier studies like Reid (1987). ESL students prefer the Kinesthetic/Tactile learning style, and they like to study individually more than with other people.

Learning Preferences and Test Results

In this research, students studied English idioms using computers and adequate software. Tables two to five include the test results of those students who received highest scores in different learning preference factors (score was 20 or higher).

Table 2. Pretest Means, Standard Deviations, Minimums, Maximums, and Number of Students Who Received Highest Scores in Different Learning Style Preference Factors.

Learning Style Preference	Mean	SD	Min	Max	n
Kinesthetic/Tactile	85.56	19.44	60	100	9
Visual	63.33	18.71	30	100	9
Auditory	60.91	27.00	20	100	11
Individual	59.33	23.44	30	90	15
Group	67.00	28.30	20	100	10

Table 3. Interim I Means, Standard Deviations, Minimums, Maximums, and Number of Students Who Received Highest Scores in Different Learning Style Preference Factors.

Learning Style Preference	Mean	SD	Min	Max	n
Kinesthetic/Tactile	93.89	7.12	80	100	9
Visual	77.50	15.81	50	100	8
Auditory	86.36	9.51	70	95	11
Individual	83.85	14.02	70	100	13
Group	86.36	15.34	60	100	11

Table 4. Interim II Means, Standard Deviations, Minimums, Maximums, and Number of Students Who Received Highest Scores in Different Learning Style Preference Factors.

Learning Style Preference	Mean	SD	Min	Max	n
Kinesthetic/Tactile	96.88	5.94	85	100	8
Visual	85.00	16.33	70	100	7
Auditory	86.11	13.64	60	100	9
Individual	84.09	16.40	55	100	11
Group	87.86	9.94	70	95	7

Table 5. Final Test Means, Standard Deviations, Minimums, Maximums, and Number of Students Who Received Highest Scores in Different Learning Style Preference Factors.

Learning Style Preference	Mean	SD	Min	Max	n
Kinesthetic/Tactile	89.56	6.35	79	99	9
Visual	86.78	9.47	70	99	9
Auditory	87.73	12.73	70	94	11
Individual	84.31	10.44	64	95	13
Group	87.73	9.59	69	96	11

One of the main purposes of this study was to find out if there are relationships between learning styles and test results. Table 6 shows the results of t-tests between students who received the highest scores (20 or higher) in different learning style preference factors.

Table 6. Results of t-tests Between Learning Styles and Test Results

Between		Pre-Test	Interim I	Interim II	Final
Kine/Tac	df	16	15	13	16
Visual	t	2.47	2.79	1.93	0.73
	p	<.05	<.05	>.05	>.05
Kine/Tac	df	18	18	15	18
Auditory	t	2.29	1.94	2.06	0.39
	p	<.05	>.05	>.05	>.05
Visual	df	18	17	14	18
Auditory	t	0.23	-1.53	-0.15	-0.18
	p	>.05	>.05	>.05	>.05
Individ.	df	23	22	16	22
Group	t	-0.74	-0.42	-0.54	-0.83
	p	>.05	>.05	>.05	>.05

Note: $p < .05$ = result significant
$p > .05$ = result non significant

There were some significant differences between learning style groups at Pre-test, Interim I and also Interim II. However, there were no significant differences on the final test. The result supports Davidman's (1981) finding that young adults' and adults' learning styles can be modified and extended. The difference between the test results diminished when the students became acquainted with studying English idioms via CALL.

Discussion

Generally speaking Nova University Intensive Language Program students prefer the Kinesthetic/Tactile learning style. Those students who highly preferred Kinesthetic/Tactile learning style achieved better learning results. This was especially true at Pre-test, Interim I, and Interim II. However, there were no significant differences between students representing different learning styles in the final test. This result supports Davidman's (1981) finding that young adults' and adults' learning styles can be modified and extended. Adult learners are able to use different learning styles depending on the situation they are in (Kolb 1984, 85-196). Research with native speakers of English strongly suggests that the ability of students to employ multiple learning styles results in greater classroom success (Cronbach & Snow, 1977; Stewart,1981).

There are, of course, dangers in the misuse of learning style assessment, diagnosis, and description. Firstly, turning questionnaire results into stereotypes about individuals or cultural groups denies students the opportunity to develop fully. Moreover, the variables that affect learning in general education, and in second language learning, are complex. A multiplicity of interacting factors must be taken into account: the compensating role of motivation, the nature of the learning task, the relationship between teacher and student and other situational variables (Doyle & Rutherford, 1984). As Gregorc

(1979a, 236) has stated: "Learning style preferences of students cannot be the sole basis of designing instruction, and perception based on diagnosis must be tentative, varied, monitored, and verified". In addition, the complexity of identifying learning styles is also crucial: Corbett and Smith (1984) discussed the problem of the reliability of learning style instruments and showed that individual variation tended to be consistent and therefore suggestive of external reliability but that group variation tended to be less reliable. Gregorc (1979b) lists [illegible] shortcomings of existing self-assessment instruments: (a) the instruments are exclusive (i.e., they focus on certain variables);(b) the students may not self-report accurately; and (c) the students have adapted for so long that they may report on adapted preferences. It is good to recognize that when using information on learning styles one should proceed with caution and be aware of the fact that no single diagnostic instrument can solve all learning problems (Reid, 1987).

Pre-university ESL students, with their variety of language and cultural backgrounds, and their differences in age and previous education, often come together in intensive English programs in which they are taught homogeneously. The students in Nova University Intensive Language Program participating in this study, when they were working individually with computer and software, were able to achieve great learning results. Even though in the beginning there were differences between learning results in different learning style groups the final results show that each learning style group had achieved similar results.

All the above indicate that CALL equipped with adequate software can be an excellent supplemental teaching tool in ESL environments.

Computers and CALL provide several new opportunities for arranging instruction in ESL environments. Drill and practice type CALL programs can easily applied to mechanical language problems like verb tenses, new vocabulary, idioms etc. To improve students' reading abilities CALL reading programs could provide help. Word processors could be used to improve students' writing abilities. Simulation programs could help students to manage in different situations in their everyday life. The opportunities are numerous -- the restrictions are instructors' lack of imagination, training, and the lack of hardware and suitable software in intensive language programs. For example, at Nova University's Intensive Language Program one could save more than 1500 teaching hours during 45 weeks just replacing one normal study hour into computer lab (seven classes) and all this would happen without loosing the quality of instruction and students' learning results.

The proper use of CALL in intensive language programs offers opportunities to individualize instruction and provides instructors more time to concentrate on the areas in which the student has difficulties. It is still good to remember that CALL is and will be a supplemental tool of instruction, not a focus of instruction.

CALL is usually a very flexible way to study language. Students are able to use these programs whenever they have time. In some cases it is a more economical way to cater for students' foreign language learning needs than conventional methods of instruction. However, one has to be sure that CALL is used only in those areas where it provides at least the same learning results as other methods of instruction. Educational environments should always take care that the quality of instruction is priority number one.

CALL is part of language learning in many intensive English programs. To make it a successful supplemental tool of instruction more information is needed about the human learning process, human learning styles and preferences, and individual differences in learning. We need to create valid methods to evaluate quality aspects of language programs.

One of the most critical areas in the existing curricula is intelligent integration of CALL. This is not possible without knowing more about the learning and teaching processes in second language learning.

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